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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,722	08/09/2001	Balaji Lakshmikanth Bangolae	CSCO-009/4342	3956

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EXAMINER

NG, CHRISTINE Y

ART UNIT	PAPER NUMBER
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2663

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Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 09/924,722	<b>Applicant(s)</b> BANGOLAE ET AL.	
	<b>Examiner</b> Christine Ng	<b>Art Unit</b> 2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 August 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9-13 and 18-28 is/are rejected.
- 7) ☒ Claim(s) 5-8, 14-17 and 29-32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/7/02</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 21 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear in independent claims 1, 21 and 25 how the first end system concludes that the bi-directional virtual circuit is operational according to the determination of the another end system, since the another end system receives the plurality of response packets.

Claim 25 recites the limitation "said gateway device" in line 5. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims, 1-3, 10-12, 18-23 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,424,629 to Rubino et al.

Referring to claim 1, Rubino et al disclose in Figure 4 a method of determining the status of a bi-directional virtual circuit (PVC) in a first end system

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(ATM router 108), wherein said bi-directional circuit (PVC) is provisioned between said first end system (ATM router 108) and another end system (ATM router 102). Refer to Column 6, lines 59-63. The method comprises:

Receiving in said first end system (ATM router 108) a plurality of loopback command packets (116,118) from said another end system (ATM router 102) on said bi-directional virtual circuit (PVC). Refer to Column 6, line 58 to Column 7, line 1.

Sending from said first end system (ATM router 108) a plurality of loopback response packets (120,122) to said another end system (ATM router 102), wherein said another end system (ATM router 108) determines that said bi-directional virtual circuit (PVC) is operational based on the reception of said plurality of said response packets (120,122). Refer to Column 7, lines 1-23 and Column 8, lines 15-34.

Rubino et al do not specifically disclose the step of concluding in said first end system (ATM router 108) that said bi-directional virtual circuit (PVC) is operational according to the determination of said another end system (ATM router 102).

However, Rubino discloses that after ATM router 102 determines which PVC's have failed or have been restored, it "advertises the updated routing information to the other ATM routers". Refer to Column 9, lines 53 to Column 10, lines 30. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the step of concluding in said first end system that said bi-directional virtual circuit is operational according to the

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determination of said another end system, the motivation being so that the first end system will be able to know which paths are functional in order to transmit and receive data.

Referring to claim 2, 11, 22 and 26, Rubino et al do not disclose examining a receive frequency at which said plurality of loopback command packets are received and determining that said bi-directional virtual circuit is operational if said receive frequency does not change substantially.

However, Rubino et al disclose that an ATM router 102 repeatedly receives AIS signals at a frequency of one-second intervals while a PVC failure persists. The ATM router 102 determines that the PVC is operational once it stops receiving AIS signals for a predetermined time, preferably three seconds. Refer to Column 6, lines 37-57. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include examining a receive frequency at which said plurality of loopback command packets are received and determining that said bi-directional virtual circuit is operational if said receive frequency does not change substantially, the motivation being so that an end router will be able to determine when a failure occurs and when the failure is restored based on the rate of the loopback signals.

Referring to claim 3, 12, 23 and 27, Rubino et al disclose in Figure 4 that said bi-directional virtual circuit (PVC) comprises a permanent bi-directional virtual circuit provisioned on an ATM backbone (ATM network 104), and each of said plurality of loopback command packets (Figure 8) and plurality of loopback

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response packets (Figure 9) comprises a cell. Refer to Column 5, lines 7-14; Column 6, lines 59-63; and Column 7, line 24 to Column 8, line 14.

Referring to claims 9 and 18, Rubino et al disclose in Figure 4 that each of said first end system (ATM router 108) and said another end system (ATM router 102) comprises an edge router. Refer to Column 6, lines 59-63.

Referring to claim 10, Rubino et al disclose in Figure 4 a first end system (ATM router 108) determining the status of a bi-directional virtual circuit (PVC), wherein said bi-directional virtual circuit (PVC) is provisioned between said first end system (ATM router 102) and another end system (ATM router 108) on a network backbone. The first end system (ATM router 108) comprise (Figures 10A-10C show components of router 102; however, since routers 102 and 108 are both ATM routers, they have the same components):

An interface (Figure 10A, physical layer logic 1010) coupled to said network backbone (ATM network 104), said interface receiving a plurality of loopback command packets (116,118) from said another end system (ATM router 102) on said bi-directional virtual circuit (PVC). Refer to Column 9, lines 6-8.

A memory (Figure 10A, routing table) storing information indicating whether said bi-directional virtual circuit (PVC) is operational. Refer to Column 9, line 53 to Column 10, line 14.

A processor (Figure 10A, ATM layer logic 1008) sending a plurality of loopback response packets (120,122) to said another end system (ATM router 102) in response to receiving said plurality of loopback command packets

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(116,118), wherein said another end system (ATM router 102) determines that said bi-directional virtual circuit (PVC) is operational based on the reception of said plurality of said response packets (120,122). Refer to Column 10, lines 15-34; Column 10, line 40 to Column 11, line 30; and Column 12, line 12 to Column 13, line 30.

Rubino et al do not specifically disclose that the said processor (Figure 10A, ATM layer logic 1008) stores data in said memory (Figure 10A, routing table) indicating that said bi-directional virtual circuit (PVC) is operational if said another end system (ATM router 102) determines that said bi-directional virtual circuit (PVC) is operational.

However, Rubino et al disclose that after ATM router 102 determines which PVC's have failed or have been restored, it "advertises the updated routing information to the other ATM routers". Refer to Column 9, lines 53 to Column 10, lines 30. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the step of concluding in said first end system that said bi-directional virtual circuit is operational according to the determination of said another end system, the motivation being so that the first end system will be able to know which paths are functional in order to transmit and receive data.

Referring to claim 19, Rubino et al disclose in Figure 4 that said memory stores a VC table (routing table), wherein said VC table (routing table) stores data indicating whether said bi-directional virtual circuit (PVC) is operational. Refer to Column 9, line 53 to Column 10, line 14.

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Referring to claim 20, Rubino et al disclose in Figure 4 that data packets are transmitted on said bi-directional virtual circuit (PVC) only if said memory (routing table) indicates that said bi-directional virtual circuit (PVC) is operational. Refer to Column 9, line 53 to Column 10, line 14.

Referring to claim 21, Rubino et al disclose in Figure 4 a first end system (ATM router 108) determining the status of a bi-directional virtual circuit (PVC), wherein said bi-directional virtual circuit (PVC) is provisioned between said first end system (ATM router 108) and another end system (ATM router 102) on a network backbone (ATM network 104). Refer to Column 6, lines 59-63. The first end system (ATM router 108) comprise (Figures 10A-10C show components of router 102; however, since routers 102 and 108 are both ATM routers, they have the same components):

Means (Figure 10A, physical logic layer 1010) for receiving a plurality of loopback command packets (116,118) from said another end system (ATM router 102) on said bi-directional virtual circuit (PVC). Refer to Column 9, lines 6-8.

Means (Figure 10A, physical logic layer 1010) for sending a plurality of loopback response packets (120,122) to said another end system (ATM router 102), wherein said another end system (ATM router 102) determines that said bi-directional virtual circuit (PVC) is operational based on the reception of said plurality of said response packets (120,122). Refer to Column 8, lines 15-34 and Column 9, lines 6-8.



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Means (Figure 10A, routing table) for storing data indicating whether said bi-directional virtual circuit (PVC) is operational or not. Refer to Column 9, line 53 to Column 10, line 14.

Rubino et al do not specifically disclose that the means (Figure 10A, ATM layer logic 1008) concludes that said bi-directional virtual circuit (PVC) is operational according to the determination of said another end system (ATM router 102), wherein said means (Figure 10A, ATM layer logic 1008) for concluding causes said means for storing (Figure 10A, routing table) to store data to indicate that said bi-directional virtual circuit (PVC) is operational. Refer to Column 10, line 40 to Column 11, line 30; and Column 12, line 12 to Column 13, line 30.

However, Rubino discloses that after ATM router 102 determines which PVC's have failed or have been restored, it "advertises the updated routing information to the other ATM routers". Refer to Column 9, lines 53 to Column 10, lines 30. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the step of concluding in said first end system that said bi-directional virtual circuit is operational according to the determination of said another end system, the motivation being so that the first end system will be able to know which paths are functional in order to transmit and receive data.

Referring to claim 25, refer to the rejection of claim 1. Furthermore, Rubino et al disclose that the processors inside ATM routers 102 and 108

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(Figures 10A-10C) can be implemented as a computer readable medium carrying one or more sequences of instructions. Refer to Column 15, lines 13-22.

5. Claims 4, 13, 24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,424,629 to Rubino et al in view of U.S. Patent No. 5,659,540 to Chen et al.

Rubino et al do not disclose that said plurality of loopback command packets and said plurality of loopback response packets are generated consistent with ITU-T Recommendation I.610.

Chen et al disclose in Figure 1 that loopback command packets and loopback response packets are generated consistent with ITU-T Recommendation I.610 since this standard sets forth the use of OAM cells to provide "performance monitoring, defect and failure detection, system protection, defect information, and fault localization functions". Refer to Column 1, lines 47-51; Column 2, lines 13-23 and Column 2, line 51 to Column 3, line 23. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that said plurality of loopback command packets and said plurality of loopback response packets are generated consistent with ITU-T Recommendation I.610, the motivation being that the ITU-T Recommendation I.610 provides standards for the use of OAM cells.

***Allowable Subject Matter***

6. Claims 5-8, 14-17, and 29-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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**Conclusion**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Ng whose telephone number is (571) 272-3124. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. Ng *cc*  
February 24, 2005

  
RICKY NGO  
PRIMARY EXAMINER

*3/9/05*